

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (currently amended) A system comprising:
a processor;
a sensor interface responsive to the processor ~~and configured to receive environmental data;~~ and
memory responsive to the processor, the memory including program instructions operable to direct the processor to:
 ~~implement a kernel-mode device driver for gathering environmental data via the sensor interface and for manipulating a journal based data system; associated with the environmental data gathered received via the sensor interface~~
 implement a plurality of variable definitions in the journal based data system, each variable definition of the plurality of variable definitions being associated with at least one sensor and indicating a data type for environmental data gathered from the associated at least one sensor;
 implement a plurality of variable update record in the journal based data system, each variable update records of the plurality of variable update records being associated with at least one of the plurality of variable definitions and having a value of the data type indicated by the associated at least one of the plurality of variable definitions;
 gather, via the kernel-mode device driver, the environmental data from the at least one sensor; and
 store the environmental data in at least one of the plurality of variable update records associated with at least one of the plurality of variable definitions associated with the at least one sensor.
2. (original) The system of claim 1, wherein the kernel-mode device driver runs with

supervisor privilege within a kernel of an operating system.

3. (original) The system of claim 1, wherein the kernel-mode device driver comprises code that runs with kernel privilege and provides access to a hardware device.

4. (original) The system of claim 1, wherein the memory further comprises program instructions for implementing a monitoring application.

5. (original) The system of claim 1, further comprising a network interface responsive to the processor.

6. (original) The system of claim 5, wherein the memory further comprises program instructions for implementing a notification application for communicating data events via the network interface.

7. (original) The system of claim 5, wherein the memory further comprises program instructions for implementing a web server for communicating data via the network interface.

8. (currently amended) The system of claim 1, wherein the memory further comprises program instructions for implementing ~~a~~ each variable definition of the plurality of variable definitions in the journal-based data system to indicate a data type for at least one of temperature data, humidity data, airflow data, video data, audio data and dry-contact data.

9. (previously presented) The system of claim 8, wherein the memory further comprises program instructions for implementing each variable definition of the plurality of variable definitions to have an associated variable and to include an oldest update field and a latest update field.

10. (currently amended) The system of claim 1, wherein the memory further comprises

program instructions for implementing ~~a~~ each variable update record of the plurality of variable update records in the journal based data system to have a data type for at least one of temperature data, humidity data, airflow data, video data, audio data and dry-contact data.

11. (currently amended) The system of claim ~~10~~ 1, wherein the memory further comprises program instructions for implementing each variable update record of the plurality of variable update records to have an associated variable and to include ~~a variable value~~, a next update pointer; and a previous update pointer.

12. (previously presented) The system of claim 11, wherein the memory further comprises program instructions for implementing the previous update pointer to point to an oldest update field of a variable definition associated with the associated variable.

13. (previously presented) The system of claim 11, wherein the memory further comprises program instructions for implementing the next update pointer to point to the latest update field of a variable definition associated with the associated variable.

14. (previously presented) The system of claim 1, wherein the memory further comprises program instructions for implementing a context record in the journal based data system.

15. (previously presented) The system of claim 14, wherein the memory further comprises program instructions for implementing a current timestamp field in the context record.

16. (previously presented) The system of claim 14, wherein the memory further comprises program instructions for implementing, in the context record, a next update field including a pointer to a next update in a global journal of update records.

17. (withdrawn) A system for maintaining data integrity, the system comprising:
memory including: a plurality of variable definitions, each variable definition of the plurality of variable definitions having an associated variable and including an oldest update

field and a latest update field;

a plurality of variable update records, each variable update record having an associated variable and including a variable value, a next update pointer, and a previous update pointer, the previous update pointer of a first variable update record associated with one variable pointing to the oldest update field of a variable definition associated with the one variable, the next update pointer of a second variable update record associated with the one variable pointing to the latest update field of the variable definition associated with the one variable; and

a plurality of context records, each context record of the plurality of context records having an associated current timestamp field and a context update field pointing to a third variable update record of the plurality of variable update records.

18. (withdrawn) The system of claim 17, wherein each variable definition further comprises an identification string, and the system further comprising a hash table with records hashed by the identification string.

19. (withdrawn) The system of claim 17, wherein each variable definition further comprises a class pointer, the class pointer indicating a class and permitting inheritance of class attributes.

20. (withdrawn) The system of claim 17, wherein each variable definition further comprises a creation timestamp.

21. (withdrawn) The system of claim 17, wherein each variable definition further comprises a flag.

22. (withdrawn) The system of claim 21, wherein the flag indicates an attribute selected from the group consisting of a read-only flag, a constant flag, and an undeletable flag.

23. (withdrawn) The system of claim 21, wherein the flag indicates a persistence attribute.

24. (withdrawn) The system of claim 17, wherein each variable update record comprises a variable update timestamp.
25. (withdrawn) The system of claim 17, wherein each of the plurality of variable update records that have a timestamp older than the current timestamp of a context record having the oldest current timestamp of the plurality of context records are discarded.
26. (withdrawn) A method for accessing a value associated with a variable at a target time, the method comprising:
- searching a variable record table for a variable record, the variable record having a variable identification associated with the variable, a latest update pointer, a creation time not greater than the target time, and a latest update time; and
 - selectively searching a set of update records starting with a first update record indicated by the latest update pointer and following a previous update pointer included in the first update record to a subsequent update record.
27. (withdrawn) The method of claim 26, wherein the update record is an oldest update record stored in the variable record.
28. (withdrawn) The method of claim 26, wherein the target time is associated with a context record.
29. (withdrawn) The method of claim 26, further comprising comparing the value to a threshold.
30. (withdrawn) The method of claim 26, further comprising transmitting the value via a network.
31. (withdrawn) The method of claim 26, further comprising incorporating the value into an XML document.

32. (withdrawn) A method for managing memory, the method comprising:
determining an oldest timestamp of interest; searching a set of update records starting at a specified start point and proceeding chronologically to subsequent update records until identifying a first update record with a timestamp newer than the oldest timestamp of interest; setting the specified start point to the record chronologically following the first update record; and
revising a variable record associated with the first update record.
33. (withdrawn) The method of claim 32, wherein revising the variable record comprises: copying contents of the first update record into an oldest record associated with the variable record; and removing the first update record from the set of update records.
34. (withdrawn) The method of claim 32, wherein revising the variable record comprises: determining if the update record is the oldest update record for an associated variable and whether a value of the update record has been deleted; and selectively, unlinking the variable record from a variable table.
35. (withdrawn) The method of claim 32, wherein the oldest timestamp of interest is associated with a context record.
36. (currently amended) A method for processing data from a sensor comprising:
storing, in memory, program instructions operable to direct a processor to:
implement a kernel-mode device driver for gathering ~~environmental~~ data via a sensor interface and for manipulating a journal based data system ~~associated with the environmental data received via the sensor interface;~~
implement a plurality of variable definitions in the journal based data system, each variable definition of the plurality of variable definitions being associated with at least one sensor and indicating a data type for environmental data gathered from the associated at least one sensor;

implement a plurality of variable update records in the journal based data system,
each variable update records of the plurality of variable update records being associated
with at least one of the plurality of variable definitions and having a value of the data
type indicated by the associated at least one of the plurality of variable definitions;
executing, by a processor, the program instructions ~~implementing the kernel-mode device~~
~~driver;~~

gathering, by the implemented kernel-mode device driver, the environmental
data from the at least one sensor via the sensor interface; and

~~manipulating the journal based data system associated with the environmental data~~
storing the environmental data in at least one of the plurality of variable update records
associated with at least one of the plurality of variable definitions associated with the at least one
sensor.

37. (previously presented) The method of claim 36, wherein executing, by the processor, the
program instructions implementing the kernel-mode device driver comprises implementing a
kernel-mode device driver that executes with supervisor privilege within a kernel of an operating
system.

38. (previously presented) The method of claim 36, further comprising storing, in the
memory, program instructions for implementing a monitoring application.

39. (currently amended) A computer readable storage medium having stored thereon
sequences of instructions including instructions that will cause a processor to:

store, in memory, program instructions operable to direct the processor to:

implement a kernel-mode device driver for gathering ~~environmental~~ data via a
sensor interface and for manipulating a journal based data system ~~associated with the~~
~~environmental data received via the sensor interface;~~

implement a plurality of variable definitions in the journal based data system,
each variable definition of the plurality of variable definitions being associated with at

least one sensor and indicating a data type for environmental data gathered from the associated at least one sensor;

implement a plurality of variable update records in the journal based data system, each variable update records of the plurality of variable update records being associated with at least one of the plurality of variable definitions and having a value of the data type indicated by the associated at least one of the plurality of variable definitions;

~~execute the program instructions implementing the kernel-mode device driver;~~

gather, by the implemented kernel-mode device driver, environmental data from the at least one sensor via a sensor interface; and

~~manipulate a journal based data system associated with the environmental data~~

store the environmental data in at least one of the plurality of variable update records associated with at least one of the plurality of variable definitions associated with the at least one sensor.

40. (previously presented) The method of claim 36, further comprising decoding, from an XML-encoded file, a value of at least one persistent variable included in the journal based data system.